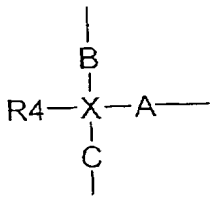
IN THE CLAIMS

1. (canceled)

2. (withdrawn) The method of claim 14, wherein R1, R2, R3 are advantageously identical to each other and represent methyl or ethyl groups.

3. (withdrawn) The method of claim 14, wherein R5, R6, R7, R8 are advantageously identical to each other and represent hydrogen atoms or methyl groups.

4. (withdrawn) The method of claim 14, wherein the group



is a hydrophilic group of 1 to 6 carbon atoms.

5. (withdrawn) The method of claim 14, wherein the hydrophilic group(s) is (are) selected from the groups with formula -L-Q, in which L is a chemical bond or an alkyl group in C1-C6, linear or ramified and Q is chosen from among:

a) a hydroxyl, amine, carboxyl, sulphate or phosphate group;

b) a linear or ramified C1-C6 alkyl group containing one or several hydroxyl, amine, carboxyl, sulphate, phosphate groups;

c) an M, OM, CONHM, NHCOM group in which M is a hydrophilic group; or

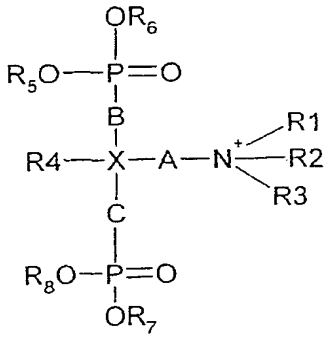
d) a hydrophilic group according to a), b) or c), protected by a group that becomes a hydrophilic group again after a biological hydrolysis.

6. (withdrawn) The method according to claim 14, wherein said formula 1 further comprises two phosphonic groups and one quaternary ammonium group.

7. (withdrawn) The method of claim 14, wherein the polyphosphonate compound is 2,2-diphosphono-5-hydroxy-3-oxa-6-hexyltrimethylammonium chloride.

8. (currently amended) An oral hygiene composition comprising:

a polyphosphonate compound having a structure represented by formula I:



(I)

wherein:

R1, R2, R3, R5, R6, R7, R8 represent an atom of hydrogen or an alkyl or aryl group in C1 - C6, independently of each other;

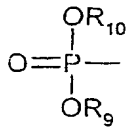
X is a carbon C atom ~~or a nitrogen N atom~~;

A represents an alkyl or aryl group in C1 - C6, a carbonyl group or a hydrophilic group, B and C represent a chemical bond~~, an alkyl or aryl group in C1 - C6, a carbonyl group, or a hydrophilic group~~; and

R4 represents:

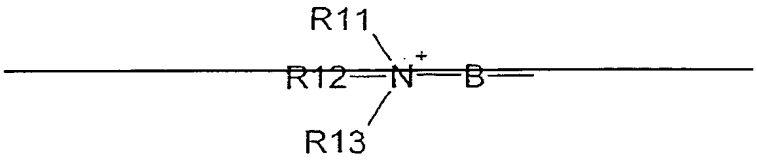
a hydrogen atom, an OH group, an alkyl or an aryl group in C1 - C6, ~~or a carboxylic acid in C1 - C6, a free doublet (if X is a nitrogen N);~~ or

a phosphonate with formula:



in which R9, R10 represent a hydrogen atom, or an alkyl or an aryl group in C1 - C6, independently of each other;

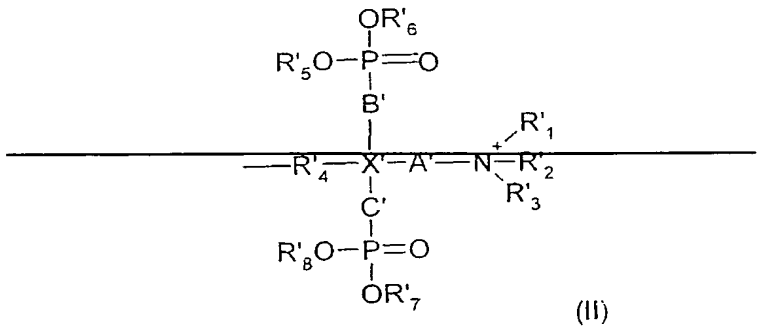
~~a quaternary ammonium group with formula:~~



~~in which R11, R12, R13 represent a hydrogen atom, or an alkyl or an aryl group in C1 - C6 independently of each other, and B represents a chemical bond, an alkyl group in C1 - C6, a carbonyl group or a hydrophilic group;~~

~~a hydrophilic group;~~

~~a polyphosphonate group with the following general formula II:~~



(II)

~~wherein:~~

~~R'1, R'2, R'3, R'5, R'6, R'7, R'8 represent an atom of hydrogen, or an alkyl or an aryl group in C1 - C6, independently of each other;~~

~~X' is a C atom or an N atom;~~

~~A', B' and C' represent a chemical bond, an alkyl or an aryl group in C1-C6, a carbonyl group, or a hydrophilic group;~~

~~and R'4 represents an alkyl or an aryl group in C1-C6, or a carboxylic acid in C1-C6;~~

~~a mixture of such polyphosphonate compounds; or~~

~~a pharmaceutically acceptable salts, thereof~~.

9. (previously presented) An oral hygiene composition according to claim 8, wherein said polyphosphonate compound is present in an amount about 0.01% to 20% by weight.

10. (previously presented) An oral hygiene composition according to claim 8, wherein said phosphate is present in an amount 0.05% to 5% by weight.

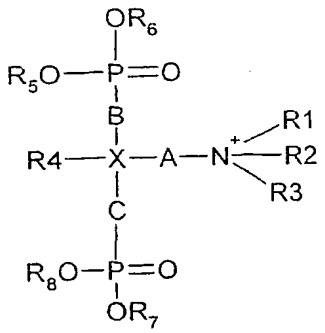
11. (previously presented) An oral hygiene composition according to claim 8, wherein said phosphate is present in an amount 0.1% to 2% by weight.

12. (previously presented) An oral hygiene composition according to claim 8, further comprising at least one of the elements selected from the group consisting of an antibacterial agent, polishing agent, thickening agent, moisturizing agent, aroma, sweetening agent, and a bleaching agent.

13. (previously presented) An oral hygiene composition according to claim 8, which is in the form of a mouthwash, a spray liquid, a toothpaste, or a tooth gel.

14. (withdrawn) A method of inhibiting the appearance and development of dental plaque, comprising:

topically applying in a mouth or on the surface of teeth a polyphosphonate compound having a structure represented by formula I:



(I)

wherein R1, R2, R3, R5, R6, R7, R8 represent an atom of hydrogen or an alkyl or aryl group in C1 - C6, independently of each other;

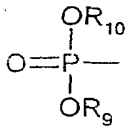
X is a carbon C atom or a nitrogen N atom;

A represents an alkyl or aryl group in C1 - C6, a carbonyl group or a hydrophilic group, B and C represent a chemical bond, an alkyl or aryl group in C1-C6, a carbonyl group, or a hydrophilic group; and

R4 represents:

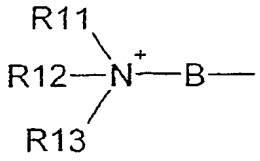
a hydrogen atom, an OH group, an alkyl or an aryl group in C1-C6, or a carboxylic acid in C1-C6, a free doublet (if X is a nitrogen N);

a phosphonate with formula:



in which R9, R10 represent a hydrogen atom, or an alkyl or an aryl group in C1-C6, independently of each other;

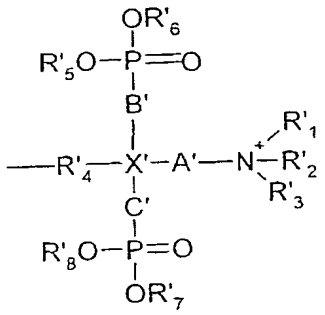
a quaternary ammonium group with formula:



in which R11, R12, R13 represent a hydrogen atom, or an alkyl or an aryl group in C1-C6 independently of each other, and B represents a chemical bond, an alkyl group in C1-C6, a carbonyl group or a hydrophilic group;

a hydrophilic group;

a polyphosphonate group with the following general formula II:



(II)

wherein:

- R'1, R'2, R'3, R'5, R'6, R'7, R'8 represent an atom of hydrogen, or an alkyl or an aryl group in C1-C6, independently of each other;

- X' is a C atom or an N atom;

- A', B' and C' represent a chemical bond, an alkyl or an aryl group in C1-C6, a carbonyl group, or a hydrophilic group;

- and R'4 represents an alkyl or an aryl group in C1-C6, or a carboxylic acid in C1-C6;

a mixture of such polyphosphonate compounds; or

a pharmaceutically acceptable salt thereof.

15. (withdrawn) The method of claim 14, wherein the polyphosphonate compound is

- 6-trimethylammoniohexyl-1,1-bisphosphonic acid